

Applicant: Chmitt et al.
Application No.: 10/706,345

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for processing input/output request packets (IRPs) directed to a Data Volumes for providing a single logical storage device to users and applications of a computing system, the Data Volume having a meta-data extent and at least one data extent, the method comprising the steps of:

receiving an initial IRP;

evaluating the initial IRP by a first volume filter associated with the meta-data extent to determine the meta-data extent to handle the IRP;

directing the IRP by the first volume filter to the appropriate meta-data extent;

redirecting the IRP from the meta-data extent to a second volume filter associated with the at least one data extent associated with the meta-data extent; and

returning a response to the initial IRP from the second volume filter associated with the at least one data extent;

wherein the meta-data extent and at least one data extent comprise at least two logical drives;

the Data Volume appears as a single storage volume to the users and the applications;

and

the meta-data extent comprises configuration information for use in setting up and maintaining the Data Volumes.

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2. (Original) The method of claim 1 wherein the IRP is initiated by an originator of input/output (I/O).
3. (Original) The method of claim 2 wherein the originator of I/O is a Small Computer System Interface Target Mode Driver (SCSITMD).
4. (Original) The method of claim 1 wherein the meta-data extent is associated with a plurality of data extents.
5. (Original) The method of claim 4 wherein the plurality of data extents are located on a plurality of physical disks.
6. (Canceled)
7. (Previously presented) The method of claim 1 wherein the redirecting step includes creating additional IRPs by the volume filter, each additional IRP being derived from the initiated IRP and relating to a single data extent.
8. (Original) The method of claim 1 wherein the meta-data extent and at least one data extent are Basic Volumes and the method is implemented above said Basic Volumes.
9. (Previously presented) A method for storing data across at least one physical disk and presenting the data as a single virtual disk, comprising the steps of:
forwarding a first input/output request packet (IRP) from an originator of I/O to a first volume filter associated with a meta-data extent, the meta-data extent being associated with at least one data extent of a Data Volume;
intercepting the first IRP by the volume filter associated with the meta-data extent;

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creating an additional IRP by the first volume filter for each data extent affected by the first IRP;

transmitting the additional IRPs to a second volume filter associated with each data extent affected by the first IRP; and

allowing the additional IRPs to pass through a the second volume filter associated with volume filter of each data extent affected by the first IRP; and

returning a response to the first IRP from the second volume filter associated with the at least one data extent to the originator.

10. (Canceled)

11. (Previously presented) The method of claim 9 wherein the data extents are located on separate physical disks.

12. (Previously presented) The method of claim 9 wherein the data extents affected by the first IRP are located on separate physical disks.

13. (Original) The method of claim 11 wherein the meta-data extent and data extents are Basic Volumes and the method is implemented above said Basic Volumes.

14. (Currently amended) A computer system for providing a single Data Volumes of data storage to users and applications of the computing system, the system comprising:
a plurality of storage clients connected to at least one storage server across a computer network;

a plurality of magnetic disks wherein Data Volumes may be created and virtually presented to said storage clients, each of said Data Volumes having a meta-data extent and at

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least one data extent, the meta-data extent including a first volume filter adapted to redirect input/output request packets (IRPs) received from one of the storage clients to a second volume filter associated with the at least one data extent, said first volume filter configured to create an additional IRP for each data extent affected by the IRP; the second volume filter associated with each of the at least one data extent returns a response to the IRP; and

a central management facility for controlling the at least one storage server;

wherein the meta-data extent and at least one data extent comprise at least two logical drives;

the Data Volume appears as a single storage volume to the users and the applications;

and

the meta-data extent comprises configuration information for use in setting up and maintaining the Data Volume.

15. (Original) The computer system of claim 14 wherein the computer network is a fibre channel network.

16. (Original) The computer system of claim 14 wherein each storage client is presented with a virtual disk including at least one Data Volume having a meta-data extent and at least one data extent.

17. (Canceled)

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18. (Previously presented) The computer system of claim 14 wherein the at least one data extent is a plurality of data extents and the IRPs are redirected to the data extents based on which data extents are affected by the IRPs.

19. (Original) The computer system of claim 14 wherein each storage client is presented with a particular Data Volume including a meta-data extent and at least one data extent.

20. (Original) The computer system of claim 19 wherein the Data Volume is a simple volume.

21. (Original) The computer system of claim 19 wherein the Data Volume is a spanned volume.

22. (Original) The computer system of claim 21 wherein the Data Volume includes at least three Basic Volumes and a volume filter is logically disposed above said Basic Volumes.

23. (Previously presented) A volume filter for redirecting input/output request packets (IRPs) sent from an input/output (I/O) originator, the volume filter comprising:

intercepting means for intercepting IRPs sent to a meta-data extent associated with a Basic Volume;

evaluating means for evaluating IRPs to determine a meta-data extent to handle the IRP;

redirecting means for redirecting the IRPs to at least one data extent associated with at least one other Basic Volume wherein a plurality of data extents are associated with an equal number of Basic Volumes; and

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creating means for creating an additional IRP for each data extent affected by a redirected IRP;

wherein the meta-data extent and at least one data extent comprise at least two logical drives;

the Data Volume appears as a single storage volume to the users and the applications; and
the meta-data extent comprises configuration information for use in setting up and
maintaining the Data Volume.

24. (Original) The volume filter of claim 23 wherein the plurality of data extents includes data extents located on separate physical disks.

25. (Original) The volume filter of claim 24 wherein the volume filter is logically disposed above the Basic Volumes.